# NATIONAL RADIO ASTRONOMY OBSERVATORY

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19 February 2003

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| In the Matter of | ) | |
| | ) | |
| Allocations and Service Rules for the 71-76 GHz, | ) | WT Docket No. 02-146 |
| 81-86 GHz, and 92-95 GHz Bands | ) | |
| | ) | |
| Loea Communications Corporation Petition | ) | RM-10288 |
| for Rulemaking | ) | |

The National Radio Astronomy Observatory (NRAO) would like to comment briefly on the Reply Comments by Loea Communications Corporation.

The NRAO is pleased that Loea agrees that the coordination distance of 60 km recommended for the Very Long baseline Array Stations should be adopted, as well as 150 km for other RAS stations (see Loea Reply Comments, Section VB7, p.24). However, we wish to comment on a proposed rule (see Loea Reply Comments, Section VB7, p. 25), which is as follows:

> Within the 150 km coordination radii around Radio Astronomy Observatories and the 60 km coordination radii around Very Long Baseline Array Observatories listed under footnote USzzz, the Coordinator may restrict operations in the 71-76 and 81-86 GHz bands to scrambled digital modulation schemes.

We believe that the intention of this rule is that by adjusting the modulation of the signals transmitted within the coordination zones, the interference to radio astronomy stations can be eliminated or mitigated. Unfortunately, this is not the case. Radio astronomy instruments are designed to measure very small power levels and do not respond to the modulation of the signals. Even signals that have a statistically uniform spectral density across the transmitted band, as in the case of certain types of spread spectrum, can cause severe interference to radio astronomy as has been frequently experienced. Although well-intended, the rule would, therefore, not be helpful, and we ask that it not be adopted.

We propose that when transmitters within the zones are necessary, representatives of the observatory concerned should be contacted for coordination. In many cases, shielding by terrain features will prevent interference. In some cases, a carefully engineered null in the sidelobe pattern of the transmitting antenna, in the direction of the observatory, can eliminate interference. Field tests can be made if necessary.

Respectfully submitted,

Original signed by:

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Director